d his

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     (FILE 'HOME' ENTERED AT 17:02:07 ON 26 FEB 2004)

     FILE 'CAPLUS' ENTERED AT 17:02:15 ON 26 FEB 2004
L1            0 S SOFTWARE AND  ((3(2W)D) OR (THREE(2W)DIMENSIONAL) (2W) IMAGE)
L2           64 S  ((3(2W)D) OR (THREE(2W)DIMENSIONAL) (2W) IMAGE) AND  MODELLI
L3            3 S L2 AND REVIEW/DT
L4           61 S L2 NOT L3
L5            5 S L4 AND PATENT/DT
L6           56 S L4 NOT L5
L7           23 S L6 AND PY<2001

     FILE 'WPIDS' ENTERED AT 17:07:56 ON 26 FEB 2004

     FILE 'USPATFULL' ENTERED AT 17:08:08 ON 26 FEB 2004
L8        20168 S 702/?/NCL
L9         1435 S  L8 AND  ((3(2W)D) OR (THREE(2W)DIMENSIONAL) (2W) IMAGE)
L10          80 S L9 AND MODELLING
L11          52 S L10 AND (CHEM? OR BIOL?)
L12          32 S L10 AND LIGAND
L13         280 S  L8 AND  CRYSTAL AND ((3(2W)D) OR (THREE(2W)DIMENSION?)  AND
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d his

(FILE 'HOME' ENTERED AT 14:05:01 ON 26 FEB 2004)

FILE 'CAPLUS' ENTERED AT 14:05:14 ON 26 FEB 2004
L1 41 S ULTRASPIRACLE PROTEIN

=> **d bib,abs 3-6,10-13,17,25,27**

L1 ANSWER 3 OF 41 CAPLUS COPYRIGHT 2004 ACS on STN
Full Text | Citing References

AN 2003:310593 CAPLUS
DN 139:80985
TI Purification of Drosophila melanogaster **Ultraspiracle protein** and analysis of its A/B region-dependent dimerization behavior in vitro
AU Rymarczyk, Grzegorz; Grad, Iwona; Rusek, Agnieszka; Oswiecimska-Rusin, Kamila; Niedziela-Majka, Anita; Kochman, Marian; Ozyhar, Andrzej
CS Institute of Organic Chemistry, Biochemistry and Biotechnology, Division of Biochemistry, Wroclaw University of Technology, Wroclaw, 50-370, Pol.
SO Biological Chemistry (2003), 384(1), 59-69
CODEN: BICHF3; ISSN: 1431-6730
PB Walter de Gruyter GmbH & Co. KG
DT Journal
LA English
AB Two members of the nuclear receptor superfamily, EcR (ecdysteroid receptor protein) and Usp (Ultraspiracle), heterodimerize to form a functional receptor for the steroid hormone 20-hydroxyecdysone and thus enable it to coordinate morphogenetic events during insect metamorphosis. N-terminally His-tagged Usp was overexpressed in E. coli cells as a non-truncated protein and purified to homogeneity in two chromatog. steps. It was demonstrated that the recombinant receptor specifically binds the ecdysone response element of the hsp27 gene promoter (hsp27EcRE). Moreover, a highly synergistically formed heterodimeric complex with the DNA-binding domain of EcR was obsd. on hsp27EcRE, but not on the native Usp response element from the chorion s15 gene promoter. Recombinant Usp forms homodimers and homotetramers in the absence of DNA, as judged from gel filtration and chem. crosslinking expts. Truncation of its N-terminal A/B region changes mol. characteristics of Usp, considerably weakening its oligomerization potential under the same exptl. conditions. This contrasts with the results obtained previously for the similarly truncated RXR - a vertebrate homolog of Usp.
RE.CNT 41 THERE ARE 41 CITED REFERENCES AVAILABLE FOR THIS RECORD
ALL CITATIONS AVAILABLE IN THE RE FORMAT

L1 ANSWER 4 OF 41 CAPLUS COPYRIGHT 2004 ACS on STN
Full Text | Citing References

AN 2003:243738 CAPLUS
DN 139:347619
TI Using nondenaturing mass spectrometry to detect fortuitous ligands in orphan nuclear receptors
AU Potier, Noelle; Billas, Isabelle M. L.; Steinmetz, Anke; Schaeffer, Christine; Van Dorsselaer, Alain; Moras, Dino; Renaud, Jean-Paul
CS Laboratoire de Spectrometrie de Masse Bio-Organique, Ecole Europeenne de Chimie, Polymeres et Materiaux, CNRS UMR7509, Strasbourg, 67087, Fr.
SO Protein Science (2003), 12(4), 725-733
CODEN: PRCIEI; ISSN: 0961-8368
PB Cold Spring Harbor Laboratory Press
DT Journal
LA English

AB Nondenaturing electrospray mass spectrometry (ESI-MS) has been used to reveal the presence of potential ligands in the ligand-binding domain (LBD) of orphan nuclear receptors. This new approach, based on supramol. mass spectrometry, allowed the detection and identification of fortuitous ligands for the retinoic acid-related orphan receptor β (RORβ) and the **ultraspiracle protein** (USP). These fortuitous ligands were specifically captured from the host cell with the proper stoichiometry. After org. extn., these mols. have been characterized by classic anal. methods and identified as stearic acid for RORβ and a phosphatidylethanolamine (PE) for USP, as confirmed by crystallog. These mols. act as "fillers" and may not be the physiol. ligands, but they prove to be essential to stabilize the active conformation of the LBD, enabling its crystn. The resulting crystal structures provide a detailed picture of the ligand-binding pocket, allowing the design of highly specific synthetic ligands that can be used to characterize the function of orphan nuclear receptors. An addnl. advantage of this new method is that it is not based on a functional test and that it can detect low-affinity ligands.

RE.CNT 42 THERE ARE 42 CITED REFERENCES AVAILABLE FOR THIS RECORD
ALL CITATIONS AVAILABLE IN THE RE FORMAT

L1 ANSWER 5 OF 41 CAPLUS COPYRIGHT 2004 ACS on STN

Full Text | Citing References

AN 2003:230891 CAPLUS
DN 139:18590
TI Effect of ecdysone agonists on vitellogenesis and the expression of EcR and USP in codling moth (Cydia pomonella)
AU Sun, Xiaoping; Song, Qisheng; Barrett, Bruce
CS Department of Entomology, University of Missouri, Columbia, MO, 65211, USA
SO Archives of Insect Biochemistry and Physiology (2003), 52(3), 115-129
CODEN: AIBPEA; ISSN: 0739-4462
PB Wiley-Liss, Inc.
DT Journal
LA English
AB The effects of tebufenozide and methoxyfenozide on vitellogenin (Vg) synthesis/release in the fat body, translocation in hemolymph, uptake by the ovary, and the expression of the ecdysone receptor (EcR) and its heterodimer partner, **ultraspiracle protein** (USP) in fat body, were investigated in Cydia pomonello. The results indicated that both ecdysone agonists significantly increased the Vg level in the adult hemolymph when the moths were exposed to agonist-treated surfaces. However, these agonists did not affect Vg release from the fat body nor Vg deposition in the first batch oocytes. Western blot anal. revealed that the expression of EcR and USP was significantly increased in tebufenozide- and methoxyfenozide-treated samples compared to the control, suggesting that ecdysone agonists regulated the Vg synthesis via the EcR and USP proteins complex.

RE.CNT 52 THERE ARE 52 CITED REFERENCES AVAILABLE FOR THIS RECORD
ALL CITATIONS AVAILABLE IN THE RE FORMAT

L1 ANSWER 6 OF 41 CAPLUS COPYRIGHT 2004 ACS on STN

Full Text | Citing References

AN 2003:227261 CAPLUS
DN 139:209479
TI Structure-based analysis of the **ultraspiracle protein** and docking studies of putative ligands
AU Sasorith, Souphatta; Billas, Isabelle M. L.; Iwema, Thomas; Moras, Dino; Wurtz, Jean-Marie
CS Dep. Genomique Biologie Structurales, Inst. Genetique Biologie Moleculaire Cellulaire, Illkirch, 67404, Fr.

SO Journal of Insect Science (Tucson, AZ, United States) [online computer file] (2002), 2, No pp. given
CODEN: JISTCY; ISSN: 1536-2442
URL: http://www.insectscience.org/2.25/Sasorith_et.al._JIS_2_25_2002.pdf
PB University of Arizona Library
DT Journal; (online computer file)
LA English
AB The **ultraspiracle protein** (USP) is the insect ortholog of the mammalian retinoid X receptor (RXR). Fundamental questions concern the functional role of USP as the heterodimerization partner of insect nuclear receptors such as the ecdysone receptor. The crystallog. structures of the ligand binding domain of USPs of Heliothis virescens and Drosophila melanogaster solved recently show that helix 12 is locked in an antagonist conformation raising the question whether USPs could adopt an agonist conformation as obsd. in RXRα. In order to investigate this hypothesis, a homol. model for USP is proposed that allows a structural anal. of the agonist conformation of helix 12 based on the sequence comparison with RXR. For USP, one of the main issues concerns its function and in particular whether its activity is ligand independent or not. The x-ray structures strongly suggest that USP can bind ligands. Putative ligands have therefore been docked in the USP homol. model. Juvenile hormones and juvenile hormone analogs were chosen as target ligands for the docking study. The interaction between the ligand and the receptor are examd. in terms of the pocket shape as well as in terms of the chem. nature of the residues lining the ligand binding cavity.
RE.CNT 36 THERE ARE 36 CITED REFERENCES AVAILABLE FOR THIS RECORD
ALL CITATIONS AVAILABLE IN THE RE FORMAT

L1 ANSWER 10 OF 41 CAPLUS COPYRIGHT 2004 ACS on STN

Full Text | More References

AN 2002:658234 CAPLUS
DN 137:196680
TI Substitution variants of nuclear receptors and their use in a dual switch inducible system for regulation of gene expression
IN Palli, Subba Reddy; Kumar, Mohan Basavaraju; Cress, Dean Ervin; Fujimoto, Ted Tsutomu
PA Rohm and Haas Company, USA; Rheogene Inc.
SO PCT Int. Appl., 148 pp.
CODEN: PIXXD2
DT Patent
LA English
FAN.CNT 6

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	WO 2002066612	A2	20020829	WO 2002-US5090	20020220
	WO 2002066612	A3	20031030		
	W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, OM, PH, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VN, YU, ZA, ZM, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM				
	RW: GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW, AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG				
	EP 1373470	A2	20040102	EP 2002-742489	20020220
	R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO, MK, CY, AL, TR				
PRAI	US 2001-269799P	P	20010220		
	US 2001-313925P	P	20010821		
	WO 2002-US5090	W	20020220		

OS MARPAT 137:196680

AB This invention relates to the field of biotechnol. or genetic engineering. A mechanism for the regulation of gene expression that allows tight control of a no. of genes is described. The transactivation and DNA-binding domains of transcription regulatory factors are sepd. by placing them on two different protein cassettes. The transactivation and DNA-binding domains of transcription regulatory factors are sepd. by placing them on two different fusion proteins. The chimeric genes encoding the fusion proteins encode a first protein that is a DNA-binding domain fused to a nuclear receptor and the second encoding a transactivation domain fused to a nuclear receptor polypeptide. Interaction of the first protein with the second protein effectively tethers the DNA-binding domain to the transactivation domain. Since the DNA-binding and transactivation domains reside on two different mols., the background activity in the absence of ligand is greatly reduced. Novel substitution mutant of nuclear receptors, specifically Group H nuclear receptors, that show improved ligand responsiveness that can be used to modulate gene expression in a host cell for applications such as gene therapy, large scale prodn. of proteins and antibodies, cell-based high throughput screening assays, functional genomics and regulation of traits in transgenic organisms. In particular, one gene expression cassette is inducibly regulated by a steroid ligand and the other gene expression cassette is inducibly regulated by a non-steroid ligand. Specific embodiments of the invention provide ecdysone receptor ligand-binding domains fused to the DNA-binding domains of GAL4 or LexA, and the ligand-binding domains of retinoid X receptor or **ultraspiracle protein** fused to the VP16 transactivation domain. A series of substitution mutants of insect ecdysteroid receptors were prepd. by std. PCR mutagenesis and tested for their responsiveness to ecdysteroid induction of reporter gene expression in the dual switch system. Variants that showed increased responsiveness to the ecdysteroids with decreased responsiveness to non-steroid ligands were identified. Variants showed increased responsiveness to both classes of effectors, or to nonsteroids but not ecdysteroids, were also identified.

L1 ANSWER 11 OF 41 CAPLUS COPYRIGHT 2004 ACS on STN

Full Text | Cited References

AN 2002:276176 CAPLUS

DN 136:305140

TI Ecdysone receptor, retinoid X receptor and **ultraspiracle protein** based dual switch inducible gene expression modulation system

IN Dhadialla, Tarlochan Singh; Cress, Dean Ervin; Carlson, Glenn Richard; Hormann, Robert Eugene; Palli, Subba Reddy; Kudla, Arthur John; Herzig, Ronald Phillip, Jr.; Philip, Mohan

PA Rohm and Haas Company, USA

SO PCT Int. Appl., 79 pp.
CODEN: PIXXD2

DT Patent

LA English

FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	WO 2002029075	A2	20020411	WO 2001-US30608	20010928
	WO 2002029075	A3	20021031		
	WO 2002029075	C1	20021227		
	WO 2002029075	C2	20030220		

W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, TZ, UA, UG, US, UZ, VN, YU, ZA, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM

RW: GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZW, AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG

	US 2002110861	A1	20020815	US 2001-965697	20010927
	AU 2001094916	A5	20020415	AU 2001-94916	20010928
	EP 1334200	A2	20030813	EP 2001-975606	20010928
	R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO, MK, CY, AL, TR				
PRAI	US 2000-237446P	P	20001003		
	US 2001-965697	A	20010927		
	WO 2001-US30608	W	20010928		

AB The present invention relates to the field of biotechnol. or genetic engineering. More specifically, the present invention relates to a multiple inducible gene regulation system that functions within cells to simultaneously control the quant. expression of multiple genes. The transactivation and DNA-binding domains of transcription regulatory factors are sepd. by placing them on two different protein cassettes. The improved gene expression system comprises two chimeric gene expression cassettes; the first encoding a DNA-binding domain fused to a nuclear receptor polypeptide and the second encoding a transactivation domain fused to a nuclear receptor polypeptide. Interaction of the first protein with the second protein effectively tethers the DNA-binding domain to the transactivation domain. Since the DNA-binding and transactivation domains reside on two different mols., the background activity in the absence of ligand is greatly reduced. In particular, one gene expression cassette is inducibly regulated by a steroid ligand and the other gene expression cassette is inducibly regulated by a non-steroid ligand. Specific embodiments of the invention provide ecdysone receptor ligand-binding domains fused to the DNA-binding domains of GAL4 or LexA, and the ligand-binding domains of retinoid X receptor or **ultraspiracle protein** fused to the VP16 transactivation domain.

L1 ANSWER 12 OF 41 CAPLUS COPYRIGHT 2004 ACS on STN

Full Text | String References

AN 2002:157150 CAPLUS
DN 136:197331
TI Identification of the Heliothis virescens homolog of the **ultraspiracle protein** by sequence homology and the development of novel insecticides
IN Zitzmann, Werner; Franken, Eva-Maria; Janssen, Martina; Schulte, Thomas
PA Bayer A.-G, Germany
SO Eur. Pat. Appl., 13 pp.
CODEN: EPXXDW
DT Patent
LA German
FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	EP 1182212	A2	20020227	EP 2001-116616	20010712
	EP 1182212	A3	20020306		
	R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO				
	DE 10036469	A1	20020228	DE 2000-10036469	20000725
	JP 2002345484	A2	20021203	JP 2001-218081	20010718
	US 2002037556	A1	20020328	US 2001-909672	20010720
PRAI	DE 2000-10036469	A	20000725		

AB The Heliothis virescens homolog of the juvenile hormone receptor ultraspiracle is identified. The protein may be useful as a target for novel insecticides.

L1 ANSWER 13 OF 41 CAPLUS COPYRIGHT 2004 ACS on STN

Full Text | String References

AN 2002:87199 CAPLUS
DN 136:130549
TI The three-dimensional structure of the ligand binding domain of **ultraspiracle protein** (USP) and its use in the design of ligands for the domain
IN Franken, Eva-Maria; Janssen, Martina; Schindler, Michael; Tietjen, Klaus; Moras, Dino; Wurtz, Jean-Marie; Rochel-Guibertau, Natacha; Billas-Massobrio, Isabelle
PA Bayer A.-G., Germany
SO Eur. Pat. Appl., 87 pp.
CODEN: EPXXDW
DT Patent
LA German
FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	EP 1176152	A2	20020130	EP 2001-116617	20010712
	EP 1176152	A3	20021211		
	R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO				
	DE 10036461	A1	20020207	DE 2000-10036461	20000725
	US 2003027984	A1	20030206	US 2001-909556	20010720
	JP 2002363198	A2	20021218	JP 2001-223966	20010725
PRAI	DE 2000-10036461	A	20000725		

this ap-4

AB The three-dimensional structure of the ligand-binding domain of the **ultraspiracle protein** of Heliothis virescens is detd. by X-ray diffractometry. Factors affecting the response of the receptor to ligand binding and its transition between antagonistic and agonistic conformation are identified.

L1 ANSWER 17 OF 41 CAPLUS COPYRIGHT 2004 ACS on STN
Full Text | Within References

AN 2001:278087 CAPLUS
DN 134:349657
TI Crystal structure of the ligand-binding domain of the **ultraspiracle protein** USP, the Ortholog of retinoid X receptors in insects

apt-5 prob-n.

AU Billas, Isabella M. L.; Moulinier, Luc; Rochel, Natacha; Moras, Dino
CS Genomics and Structural Biol. Lab., Inst. Genetique Biol. Mol. Cellulaire, CNRS/INSERM, Univ. Louis Pasteur, Illkirch, 67404, Fr.
SO Journal of Biological Chemistry (2001), 276(10), 7465-7474
CODEN: JBCHA3; ISSN: 0021-9258
PB American Society for Biochemistry and Molecular Biology
DT Journal
LA English
AB The major postembryonic developmental events happening in insect life, including molting and metamorphosis, are regulated and coordinated temporally by pulses of ecdysone. The biol. activity of this steroid hormone is mediated by two nuclear receptors: the ecdysone receptor (EcR) and the **Ultraspiracle protein** (USP). The crystal structure of the ligand-binding domain from the lepidopteran Heliothis virescens USP reported here shows that the loop connecting helixes H1 and H3 precludes the canonical agonist conformation. The key residues that stabilize this unique loop conformation are strictly conserved within the lepidopteran USP family. The presence of an unexpected bound ligand that drives an unusual antagonist conformation confirms the induced-fit mechanism accompanying the ligand binding. The ligand-binding pocket exhibits a retinoid X receptor-like anchoring part near a conserved arginine, which could interact with a USP ligand functional group. The structure of this receptor provides the template for designing inhibitors, which could be utilized as a novel type of environmentally safe insecticides.
RE.CNT 42 THERE ARE 42 CITED REFERENCES AVAILABLE FOR THIS RECORD

ALL CITATIONS AVAILABLE IN THE RE FORMAT

L1 ANSWER 25 OF 41 CAPLUS COPYRIGHT 2004 ACS on STN

Full Text | Other References

AN 1998:116253 CAPLUS
DN 128:151934
TI Regulation of transcription by insect steroid hormones
AU Fujiwara, Haruhiko; Matsuoka, Tomoko
CS Grad. Sch. Sci., Univ. Tokyo, Tokyo, 113, Japan
SO Kagaku to Seibutsu (1998), 36(2), 75-77
CODEN: KASEAA; ISSN: 0453-073X
PB Gakkai Shuppan Senta
DT Journal; General Review
LA Japanese
AB A review with 7 refs., on the mol. mechanism of metamorphosis regulation by ecdysone. The ecdysone-ecdysone receptor-**ultraspiracle protein** complex activates transcription of early genes and early-late genes. Transcription regulation mechanisms and functions of nuclear receptors (esp. DHR3) are discussed.

L1 ANSWER 27 OF 41 CAPLUS COPYRIGHT 2004 ACS on STN

Full Text | Other References

AN 1997:805886 CAPLUS
DN 128:44943
TI Screening for ultraspiracle inhibitors as potential insecticides
IN Heinrich, Julia N.; De La Cruz, Fernando; Kirsch, Donald R.
PA American Cyanamid Company, USA
SO PCT Int. Appl., 45 pp.
CODEN: PIXXD2
DT Patent
LA English
FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	WO 9745737	A1	19971204	WO 1997-US10212	19970530
	W: CA, JP				
	RW: AT, BE, CH, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE				
	EP 912896	A1	19990506	EP 1997-928958	19970530
	R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, FI				
	US 6110698	A	20000829	US 1997-865960	19970530
	JP 2000516085	T2	20001205	JP 1997-543090	19970530
PRAI	US 1996-18817P	P	19960531		
	WO 1997-US10212	W	19970530		

AB The invention relates to the identification of inhibitors of "orphan" nuclear receptors, or receptors for which no natural ligand is known. Specifically, it relates to the **ultraspiracle protein**, or Usp, of Drosophila melanogaster and homologues thereof in other insect species. A transformed yeast cell is provided, comprising an Usp binding partner, Usp or a deriv. thereof, an a reporter gene. Expression of the reporter gene requires the Usp-Usp binding partner complex. The transformed yeast is incubated in the presence and absence of the test compd. to form the test culture and control culture, resp., and expression of the reporter gene is monitored. The invention provides for identifying compds., variant nuclear proteins, and other auxiliary proteins that interfere with Usp function. Usp inhibitory compds. are useful as insecticides or as lead compds. for the development of insecticides.